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## Recent Advances in Pancreatic Surgery

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## RECENT ADVANCES IN PANCREATIC SURGERY

Surgery remains the only potential cure for pancreatic cancer, and many lesions can nowadays be detected while premalignant allowing prophylactic surgery to take place. As always with any medical care, harms and benefits of the treatment need to be balanced. This is especially challenging in case of pancreatic surgery, which has notoriously been prone to complications, pancreatic fistula being the most fearsome. Several attempts to reduce the rate of pancreatic fistula have been made in the past, and tens, if not hundreds, of different anastomosis and stump closure techniques have been introduced with more or less similar results than the previous ones. Furthermore, trials using perioperative medical therapy to reduce pancreatic fluid output using octreotide (a somatostatin analogue) have not been able to demonstrate clear benefit in terms of reducing clinically significant fistulas. As a result, postoperative pancreatic fistula remains a common problem worldwide. The phrase "Eat when you can, sleep when you can, and don't mess with the pancreas" is well known for any surgical resident. Luckily, pancreatic surgery is becoming more safe.

Several advances in reducing pancreatic fistula rate have been reported recently. Perioperative pasireotide was shown to halve severe pancreatic complications compared to placebo (9.2% vs 20.9%) (1). Pasireotide is also a somatostatin analogue, but targets more subtypes of somatostatin receptors with higher affinity compared to octreotide, possibly explaining the benefit. Perioperative hydrocortisone therapy was demonstrated to have similar trend in reducing clinically significant pancreatic fistula rate (11% vs 27%) (2), but the mechanism by which hydrocortisone reduces these complications remains unclear. On the technical side, DISCOVER trial showed that reinforcing the distal pancreatectomy suture/staple line using teres ligament patch reduced reoperation rates (1.3% vs 13.0%) (3). While perioperative medication and techniques matter, anesthesiologists should also take note. Recently published HYSLAR trial compared restrictive fluid regimen of 3% hypertonic saline with lactated Ringer's solution and showed a 25% reduction in complications after adjustments for age, weight, and pancreatic texture (4).

In this issue of *Scandinavian Journal of Surgery*, Jiang et al. (5) present another approach for reducing pancreatic fistula rates—an active drainage compared to traditionally used passive drainage method. This method included a double-lumen drain, which continuously irrigated and sucked the drainage site. While there were no differences regarding total pancreatic fistula rate, the most severe (grade 3) fistulas were reduced by this active drainage compared to

traditional passive drainage (0% vs 6.4%). Thus, it seems that this method provides a possibility to convert severe fistulas into less severe ones.

Who is then in need of a drainage after pancreaticoduodenectomy? Two recent multicenter trials have been addressing this question (6, 7). Both found that routine drainage is not necessary, and drains can be safely omitted in patients with low risk of fistula. Recently proposed Fistula Risk Score is one possibility to classify patients based on their risk for fistula (8).

Pancreatic surgery is undergoing a revolution. Boundaries for indications of radical resection are continuously being pushed and vascular resections with reconstruction are becoming a standard of care. Safety of the procedures is improving not only due to innovative new methods discussed above but also due to increase in centralization of pancreatic surgery (9). Small, but significant, improvements in long-term survival are also being recognized, and up to 44% 5-year survival rates have been reported for pancreatic ductal adenocarcinoma in recent oncological trials (10).

Still a lot of work needs to be done. How radical vascular resections are indicated? Should neoadjuvant therapy be given, and to which patients? What is the most efficient adjuvant therapy? What is the optimal fistula preventing medical perioperative therapy? Which patients would be better off without drains, and which patients should have an active drainage? We are eagerly waiting for further trials and research to improve pancreatic surgery even further.

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